

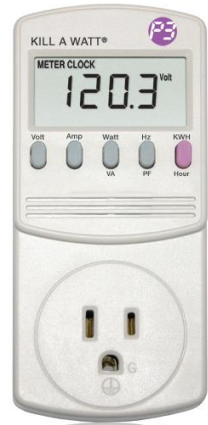
Variac/ Transformer/ Power Booster /Kill A Watt



Transformer w/ Digital Display



Transformer w/ Analog Display

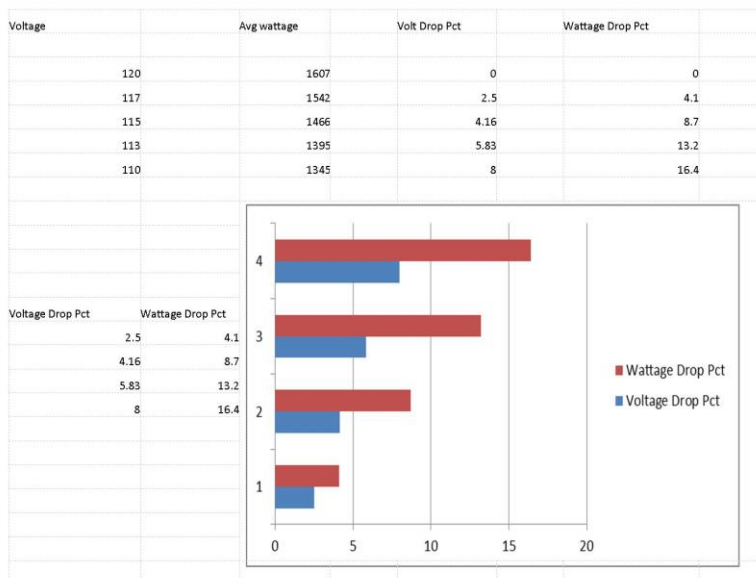


Kill A Watt

In some instances we've discovered there are tools either needed (variatic/ transformer) to boost power such as during high demand times in summer and in other instances, remote areas, where power is low.

Why the need for transformer/ power booster? One of the common issues encountered in 120v environments, is while circuits are designed to handle 120v, in many cases that's not what is actually supplied to your home for various reasons, to include over demand during midday summers when everyone is using their A/C or in general when other appliances' needs cause a major drain of power. A good example is shown in the photo on the following page.

Simply put, voltage determines wattage. The closer the voltage at the start of roasting is a true 120v reading, the better. As can be seen in the below, the lower the voltage the wattage becomes exponentially lower.



Volatge Supply 8/17/2016

120.1v 4:13am



117.1v 9:58am



115.1v 12:58pm



113.6v 1:36pm



Socket is 108" (9 feet) from master panel- solid 12 Gauge copper wire
Socket has no other power being drawn/ empty socket
No other appliance or device on this circuit
No household appliances or other items on

At 2:35pm exterior temps in shade 90F+ A/C on power dropped to 109.3v

All with no device on this circuit-

As can clearly be seen in the above even with nothing plugged in the same circuit at different times, under different conditions allows for a wide range of voltage. The closer to 120v at the start of the roasting cycle the better your overall roast times will be. Once started it's normal to lose 3-4 volts and not a concern.

If you find yourself in need of a variac there are several suggestions we can make as to using it properly.

- 1) Buy 20 amp/ 2000w version.
- 2) Digital Version- digital information is far more accurate
- 3) Analog version (using a needle) is wildly inaccurate and require adding a Kill A Watt or similar digital voltage/ wattage meter for accuracy
- 4) Setting- never set your variac above 121
- 5) Never readjust the voltage once the system has been started to counter the normal draw down of 3-4 volts. If you've set at 121 and it drops to ~116-117 etc., that is fine, and in normal range
- 6) **NEVER START at 121 or similar and readjust upwards to that same point after hitting start.**
Quartz elements cycle on/off depending upon profile and if readjusted to say 121, you could see a spike to 125v or more in that on/off cycle which could cause a sensor issue.

Fact is despite what we all may think homes new or otherwise aren't necessarily going to have 120v incoming. Power companies can in any area be up to 10% below that level. Also within a home each socket location can offer different amounts of power and be affected by other appliances (A/C, Furnace, Ovens) even if on separate circuits. Given this, having the means to monitor or view actual voltage read out can be of great assistance.

We personally recommend and use a Kill A Watt as it can be an invaluable tool for being able to see what any socket is actually offering in terms of voltage, at any time of day. When doing road shows, expos, etc., we bring them along to better understand the roasting environment.

The Kill A Watt P3 P440 is relatively inexpensive and can be found online for around \$19.95



We hope the information provided gives you a better understanding of how to address voltage issues and determine the actual in home power environment you're operating in.